

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of **Kevin J. Ward**

Serial No. **To be assigned**

Filed: **Concurrently herewith**

Reissue of U.S. Patent No. **5,967,195**

Issued: **October 19, 1999**

For: **MULTI-LAYER FORMING FABRIC WITH STITCHING YARNS INTEGRATED
INTO PAPERMAKING SURFACE**

Date: October 18, 2001

Box Reissue
Commissioner for Patents
Washington, DC 20231

LETTER UNDER 37 CFR § 1.173(c)

Sir/Madam:

REMARKS

Pursuant to 37 CFR § 1.173(c), Applicant states with regard to the Application for Reissue of U.S. Patent No. 5,967,195 filed herewith:

Claims 1-39 are pending.

No claims are cancelled.

Claims 1-15 correspond to Claims 1-15 in the issued patent.

Claims 16-39 have been added by the application filed herewith.

Pursuant to 37 CFR § 1.173(c), Applicant states with regard to the Application for Reissue of U.S. Patent No. 5,967,195 filed herewith:

Support for new Claim 16 may be found at column 4, line 28 through column 6, line 11, and in Figures 1A, 1B and 2A-2J, for example.

Support for new Claim 17 may be found at column 4, lines 32-33, column 4, lines 45-47, and Figures 1A and 1B.

Support for new Claim 18 may be found at column 4, lines 43-65, column 5, lines 9-65, and Figure 1B.

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Support for new Claim 19 may be found at column 4, lines 43-65 and Figure 1B.

Support for new Claim 20 may be found at column 4, line 28 through column 6, line 11, and in Figures 1A, 1B and 2A-2J, for example.

Support for new Claim 21 may be found at column 4, lines 32-33, column 4, lines 45-47, and Figures 1A and 1B.

Support for new Claim 22 may be found at column 4, lines 43-65 and Figure 1B.

Support for new Claim 23 may be found at column 4, lines 43-65, column 5, lines 9-65, and Figure 1B.

Support for new Claim 24 may be found at column 4, line 28 through column 6, line 65, and in Figures 1A, 1B and 2A-2J, for example.

Support for new Claim 25 may be found at column 6, lines 52-65.

Support for new Claim 26 may be found at column 6, lines 59-65.

Support for new Claim 27 may be found at column 6, lines 59-65 and Figures 1A and 1B.

Support for new Claim 28 may be found at column 4, lines 32-33, column 4, lines 45-47, and Figures 1A and 1B.

Support for new Claim 29 may be found at column 4, line 28 through column 8, line 62, and Figures 1A, 1B, 2A-2J, 3A, 3B, and 4A-4L.

Support for new Claim 30 may be found at column 6, lines 52-65.

Support for new Claim 31 may be found at column 6, lines 52-65 and Figures 1A, 1B, 2A-2J, 3A, 3B, and 4A-4L.

Support for new Claim 32 may be found at column 4, line 66 through column 5, line 8, column 7, lines 6-8, and Figures 1A, 1B, 3A and 3B.

Support for new Claim 33 may be found at column 4, lines 32-33, column 4, lines 45-47, and Figures 1A and 1B.

Support for new Claim 34 may be found at column 6, line 66 through column 7, line 8, and Figures 3A and 3B.

Support for new Claim 35 may be found at column 4, line 28 through column 6, line 65, and in Figures 1A, 1B and 2A-2J, for example.

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Support for new Claim 36 may be found at column 6, lines 52-65.

Support for new Claim 37 may be found at column 6, lines 52-65 and Figures 1A, 1B and 2A-2J.

Support for new Claim 38 may be found at column 4, line 66 through column 5, line 8 and Figures 1A, 1B and 2A-2J.

Support for new Claim 39 may be found at column 4, lines 32-33, column 4, lines 45-47, and Figures 1A and 1B.

Respectfully submitted,



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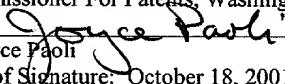
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E. Joyce Paoli
Date of Signature: October 18, 2001

16. A papermaker's fabric, comprising top machine direction yarns, top cross machine direction yarns, bottom machine direction yarns, bottom cross machine direction yarns, and sets of first and second stitching yarns, said fabric being formed in a plurality of repeating units, each of said repeating units comprising:

a set of top machine direction yarns;

a set of top cross machine direction yarns interwoven with said set of top machine direction yarns;

a set of bottom machine direction yarns;

a set of bottom cross machine direction yarns interwoven with said set of bottom machine direction yarns; and

wherein a pair of first and second stitching yarns is positioned between each adjacent pair of top cross machine direction yarns, said first and second stitching yarns of each pair being interwoven with said top and bottom machine direction yarns such that, as a fiber support portion of said first stitching yarn is interweaving with said top machine direction yarns, a binding portion of said second stitching yarn is positioned below said top machine direction yarns, and such that as a fiber support portion of said second stitching yarn is interweaving with said top machine direction yarns, a binding portion of said first stitching yarn is positioned below said top machine direction yarns, and such that said first and second stitching yarns cross each other as they pass below a transitional top machine direction yarn, and such that each of said binding portions of said first and second stitching yarns passes below at least one of said bottom machine direction yarns to form a bottom side stitching yarn knuckle; and

wherein each of said bottom machine direction yarns form bottom side machine direction knuckles as they interweave with said bottom cross machine direction yarns, and said bottom side stitching yarn knuckles are positioned below one of said bottom side machine direction yarns to be substantially centered between adjacent bottom side machine direction knuckles on that bottom machine direction yarn.

17. The papermaker's fabric defined in Claim 16, wherein said repeat unit of said fabric includes 10 bottom machine direction yarns and 10 bottom cross machine direction yarns.

18. The papermaker's fabric defined in Claim 17, wherein each of said bottom machine direction yarns passes, in order, above four consecutive bottom cross machine direction yarns, below a bottom cross machine direction yarn to form a first bottom side machine direction knuckle, above four consecutive bottom cross machine direction yarns, and below a bottom cross machine direction yarn to form a second side machine direction knuckle, and wherein a stitching yarn forms a bottom side stitching yarn knuckle below said machine direction yarn between the second and third of each of said four consecutive bottom cross machine direction yarns.

19. The papermaker's fabric defined in Claim 18, wherein each bottom machine direction yarn is offset from each adjacent bottom machine direction yarn by three bottom cross machine direction yarns, with the result that bottom side machine direction yarn knuckles are formed below the bottom cross machine direction yarns that sandwich the stitching yarn pair forming a stitching yarn knuckle below the bottom machine direction yarn.

20. A papermaker's fabric, comprising top machine direction yarns, top cross machine direction yarns, bottom machine direction yarns, bottom cross machine direction yarns, and sets of first and second stitching yarns, said fabric being formed in a plurality of repeating units, each of said repeating units comprising:

a set of top machine direction yarns;

a set of top cross machine direction yarns interwoven with said set of top machine direction yarns;

a set of bottom machine direction yarns;

a set of bottom cross machine direction yarns interwoven with said set of bottom machine direction yarns;

wherein a pair of first and second stitching yarns is positioned between each adjacent pair of top cross machine direction yarns, said first and second stitching yarns of each pair being interwoven with said top and bottom machine direction yarns such that, as a fiber support portion of said first stitching yarn is interweaving with said top machine direction yarns, a binding portion of said second stitching yarn is positioned below said top machine direction yarns, and such that as a fiber support portion of said second stitching yarn is interweaving with said top machine direction yarns, a binding portion of said first stitching yarn is positioned below said top machine direction yarns, and such that said first and second stitching yarns cross each other as they pass below a transitional top machine direction yarn, and such that each of said binding portions of said first and second stitching yarns passes below at least one of said bottom machine direction yarns to form a bottom side stitching yarn knuckle;

wherein each of said bottom machine direction yarns form bottom side machine direction knuckles as they interweave with said bottom cross machine direction yarns, and wherein each bottom machine direction yarn is offset from each adjacent bottom machine direction yarn such that, for each bottom machine direction yarn, bottom side machine direction yarn knuckles are formed by adjacent bottom machine direction yarns below the bottom cross machine direction yarns that sandwich each stitching yarn pair that forms a stitching yarn knuckle below the bottom machine direction yarn.

21. The papermaker's fabric defined in Claim 20, wherein said repeat unit of said fabric includes 10 bottom machine direction yarns and 10 bottom cross machine direction yarns.

22. The papermaker's fabric defined in Claim 21, wherein said bottom cross machine direction yarns are offset from one another by three machine direction yarns.

23. The papermaker's fabric defined in Claim 22, wherein each of said bottom machine direction yarns passes, in order, above four consecutive bottom cross machine direction yarns, below a bottom cross machine direction yarn to form a first bottom side machine direction knuckle, above four consecutive bottom cross machine direction yarns,

and below a bottom cross machine direction yarn to form a second side machine direction knuckle, and wherein a stitching yarn forms a bottom side stitching yarn knuckle below said machine direction yarn between the second and third of each of said four consecutive bottom cross machine direction yarns.

24. A papermaker's fabric, comprising top machine direction yarns, top cross machine direction yarns, bottom machine direction yarns, bottom cross machine direction yarns, and sets of first and second stitching yarns, said fabric being formed in a plurality of repeating units, each of said repeating units comprising:

a set of top machine direction yarns;

a set of top cross machine direction yarns interwoven with said set of top machine direction yarns;

a set of bottom machine direction yarns;

a set of bottom cross machine direction yarns interwoven with said set of bottom machine direction yarns;

wherein pairs of first and second stitching yarns are positioned between each pair of top cross machine direction yarns, said first and second stitching yarns of each pair being interwoven with said top and bottom machine direction yarns such that, as a fiber support portion of said first stitching yarn is interweaving with said top machine direction yarns, a binding portion of said second stitching yarn is positioned below said top machine direction yarns, and such that as a fiber support portion of said second stitching yarn is interweaving with said top machine direction yarns, a binding portion of said first stitching yarn is positioned below said top machine direction yarns, and such that said first and second stitching yarns cross each other as they pass below a transitional top machine direction yarn, and such that each of said binding portions of said first and second stitching yarns passes below at least one of said bottom machine direction yarns;

and wherein each of said first stitching yarns passes over a first number of top machine direction yarns, and each of said second stitching yarns passes over a second number of top machine direction yarns, said first number being different than said second number; and

and wherein at least some of the top cross machine direction yarns are immediately adjacent to either two first stitching yarns or two second stitching yarns.

25. The papermaker's fabric defined in Claim 24, wherein, beginning with a selected top cross machine direction yarn and moving in one direction parallel to the machine direction for the length of the full repeat unit, between 25 and 50 percent of the first stitching yarns are nearer to said selected top cross machine direction yarn than the second stitching yarns of their respective pairs.

26. The papermaker's fabric defined in Claim 25, wherein between 40 and 50 percent of the first stitching yarns are nearer to said selected top machine direction yarn than the second stitching yarns of their respective pairs.

27. The papermaker's fabric defined in Claim 25, wherein all of the top cross machine direction yarns are immediately adjacent to either two first stitching yarns or two second stitching yarns.

28. The papermaker's fabric defined in Claim 25, wherein said repeat unit includes 10 top machine direction yarns and 10 bottom machine direction yarns.

29. A papermaker's fabric, comprising top machine direction yarns, top cross machine direction yarns, bottom machine direction yarns, bottom cross machine direction yarns, and sets of first and second stitching yarns, said fabric being formed in a plurality of repeating units, each of said repeating units comprising:

a set of top machine direction yarns;

a set of top cross machine direction yarns interwoven with said set of top machine direction yarns;

a set of bottom machine direction yarns;

a set of bottom cross machine direction yarns interwoven with said set of bottom machine direction yarns;

wherein pairs of first and second stitching yarns are positioned between pairs of top cross machine direction yarns, said first and second stitching yarns of each pair being interwoven with said top and bottom machine direction yarns such that, as a fiber support portion of said first stitching yarn is interweaving with said top machine direction yarns, a binding portion of said second stitching yarn is positioned below said top machine direction yarns, and such that as a fiber support portion of said second stitching yarn is interweaving with said top machine direction yarns, a binding portion of said first stitching yarn is positioned below said top machine direction yarns, and such that said first and second stitching yarns cross each other as they pass below a transitional top machine direction yarn, and such that each of said binding portions of said first and second stitching yarns passes below at least one of said bottom machine direction yarns;

wherein, as stitching yarn pairs pass below transitional yarns, they form top side transitional stitching yarn knuckles, and in that, for at least some adjacent top side stitching yarn knuckles, first stitching yarns extending in one direction parallel to the cross machine direction from the transitional stitching yarn knuckles are woven nearer to one another than are the second stitching yarns of those pairs extending in the opposite direction parallel to the cross machine direction from the transitional stitching yarn knuckles.

30. The papermaker's fabric defined in Claim 29, wherein said first stitching yarns are woven nearer to one another as they extend from adjacent top side transitional stitching yarn knuckles for at least 50 percent of said top side stitching yarn knuckles.

31. The papermaker's fabric defined in Claim 29, wherein said first stitching yarns are woven nearer to one another as they extend from adjacent top side transitional stitching yarn knuckles for 100 percent of said top side stitching yarn knuckles.

32. The papermaker's fabric defined in Claim 29, wherein a pair of first and second stitching yarns is positioned between each pair of adjacent top cross

machine direction yarns.

33. The papermaker's fabric defined in Claim 29, wherein said repeat unit includes 10 top machine direction yarns and 10 bottom machine direction yarns.

34. The papermaker's fabric defined in Claim 29, wherein said repeat unit includes 12 top machine direction yarns and 12 bottom machine direction yarns.

35. A papermaker's fabric, comprising top machine direction yarns, top cross machine direction yarns, bottom machine direction yarns, bottom cross machine direction yarns, and sets of first and second stitching yarns, said fabric being formed in a plurality of repeating units, each of said repeating units comprising:

a set of top machine direction yarns;

a set of top cross machine direction yarns interwoven with said set of top machine direction yarns;

a set of bottom machine direction yarns;

a set of bottom cross machine direction yarns interwoven with said set of bottom machine direction yarns;

wherein pairs of first and second stitching yarns are positioned between pairs of top cross machine direction yarns, said first and second stitching yarns of each pair being interwoven with said top and bottom machine direction yarns such that, as a fiber support portion of said first stitching yarn is interweaving with said top machine direction yarns, a binding portion of said second stitching yarn is positioned below said top machine direction yarns, and such that as a fiber support portion of said second stitching yarn is interweaving with said top machine direction yarns, a binding portion of said first stitching yarn is positioned below said top machine direction yarns, and such that said first and second stitching yarns cross each other as they pass below a transitional top machine direction yarn, and such that each of said binding portions of said first and second stitching yarns passes below at least one of said bottom machine direction yarns, said first stitching yarns passing above a first number of top machine direction yarns, and

said second stitching yarns passing above a second number of top machine direction yarns, said second number being different from said first number;

wherein, as stitching yarn pairs pass below transitional yarns, they form top side transitional stitching yarn knuckles, and in that, for at least some adjacent top side stitching yarn knuckles, first stitching yarns extending in one direction parallel to the cross machine direction from the transitional stitching yarn knuckles are woven nearer to one another than are the second stitching yarns of those pairs extending in the opposite direction parallel to the cross machine direction from the transitional stitching yarn knuckles.

36. The papermaker's fabric defined in Claim 35, wherein said first stitching yarns are woven nearer to one another as they extend from adjacent top side transitional stitching yarn knuckles for at least 50 percent of said top side stitching yarn knuckles.

37. The papermaker's fabric defined in Claim 35, wherein said first stitching yarns are woven nearer to one another as they extend from adjacent top side transitional stitching yarn knuckles for 100 percent of said top side stitching yarn knuckles.

38. The papermaker's fabric defined in Claim 35, wherein a pair of first and second stitching yarns is positioned between each pair of adjacent top cross machine direction yarns.

39. The papermaker's fabric defined in Claim 35, wherein said repeat unit includes 10 top machine direction yarns and 10 bottom machine direction yarns.